

-5-

REMARKS

The Examiner has rejected Claims 1-15 under 35 U.S.C. 103(a) as being unpatentable over Greene ("Hierarchical Polygon Tiling with Coverage Masks") in view of Dehmlow et al. (U.S. Patent No. 5,999,187). Applicant respectfully disagrees with this rejection, especially in view of the amendments made hereinabove to each of the independent claims.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

With respect to the first element of the *prima facie* case of obviousness and, in particular, the obviousness of combining the aforementioned references, the Examiner argues that it would have been obvious to update the far clipping plane because it improves the z-buffer resolution and accuracy of graphics selection. To the contrary, applicant respectfully asserts that it would not have been obvious to combine the teachings of the Greene and Dehmlow references, especially in view of the vast evidence to the contrary.

Specifically, Dehmlow relates to a computer aided design (CAD) system, while Greene relates to a polygon tiling algorithm. To simply glean features from a CAD system, which aids in the creation and display of objects on a computer (such as in Dehmlow), and combine the same with the *non-analogous art* of polygon tiling algorithms (such as in Greene), would simply be improper. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must

-6-

either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992). In view of the vastly different types of problems a CAD system addresses as opposed to a polygon tiling algorithm, the Examiner's proposed combination is inappropriate.

More importantly, with respect to the third element of the *prima facie* case of obviousness, applicant has amended each of the independent claims to include the following claim language:

"...said system comprising means for updating said far clipping plane based on the farthest depth value in a z-pyramid, if the farthest depth value in the z-pyramid is nearer than a depth of the far clipping plane" (emphasis added - see the same or similar, but not identical language in each of the independent claims).

Applicant respectfully asserts that the Greene and Dehmlow references do not teach that the far clipping plane is updated substantially based on a farthest depth value which is included in a z-pyramid, in the manner claimed by applicant. In fact, Dehmlow only teaches that "far clipping planes are positioned dynamically based on the part(s)...that are present within the five-point view frustrum boundary 714" (see Col. 12, lines 43-46). Clearly, simply suggesting that a far clipping plane be within a five-point view frustrum boundary, as in Dehmlow, does not meet a farthest depth value included in a z-pyramid, in the manner claimed by applicant.

Applicant respectfully asserts that at least the first and third elements of the *prima facie* case of obviousness have not been met, since the Examiner's proposed modification would not be obvious and further the prior art references, when combined, fail to teach or suggest all the claim limitations. A notice of allowance or a specific prior art showing of each of applicant's claimed elements, in combination with the remaining claimed features, is respectfully requested.

-7-

Still yet, applicant brings to the Examiner's attention the subject matter of new Claims 16-24 below, which are added for full consideration:

"wherein the updating includes resetting the far clipping plane to the farthest depth value" (see Claim 16);

"wherein the farthest depth value is included in a tip of the z-pyramid" (see Claim 17);

"wherein the tip of the z-pyramid further includes a coarsest NxN tile in the z-pyramid" (see Claim 18);

wherein the tip of the z-pyramid further includes additional levels of the z-pyramid" (see Claim 19);

"wherein the tip of the z-pyramid includes a low-resolution z-pyramid with lower resolution than another z-pyramid maintained by a culling stage of the graphics system" (see Claim 20);

"wherein the tip of the z-pyramid includes a low-resolution z-pyramid with lower resolution than another z-pyramid maintained by a hierarchical rendering stage of the graphics system" (see Claim 21);

"wherein depth values of the z-pyramid are encoded" (see Claim 22);

"wherein the depth values of the z-pyramid are encoded for reducing storage requirements thereof" (see Claim 23); and

"wherein the updating accelerates a culling of a box since a depth of a nearest corner of the box is farther than the farthest depth value" (see Claim 24).

-8-

Thus, all of the independent claims are deemed allowable. Moreover, the remaining dependent claims are further deemed allowable, in view of their dependence on such independent claims.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 505-5100. If any fees are due in connection with the filing of this paper, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1351 (Order No. NVIDP224B_P000872).



Respectfully submitted,

Kevin J. Zilka
Registration No. 41,429

P.O. Box 721120
San Jose, CA 95172
Telephone: (408) 505-5100